

## **REMARKS**

Claims 1, 2 and 4 to 7 are in this application. Claims 3 and 8-12 have been cancelled. Applicants preserve all rights to file one or more divisional applications directed to the subject matter of claims 8-12.

Claim 1 has been amended to define a process for the preparation of 1-Propyl-2,4,5-trimethoxybenzene of the formula I from crude calamus oil from a tetraploid or hexaploid *Acorus calamus*. Support for this amendment is found on page 2, lines 17-19 of the specification where it is stated that calamus oil originating from tetraploid or hexaploid varieties contains a very high percentage of  $\beta$ -asarone varying from 70 to 90%. Support for this is also found in original claim 3.

Claim 4 has been amended to correct the spelling of calamus. It is noted that calamus was spelled correctly in original claim 4.

On page 4 of the Office Action it is stated that "claims 1-7 are rejected under 35 USC 103(a) as being obvious over Devgan alone or in view of Patra et al and further in view of March". Applicants respectfully traverse this.

Claim 1 has been amended to define a process for the preparation of 1-Propyl-2,4,5-trimethoxybenzene of the formula I from crude calamus oil from a tetraploid or hexaploid *Acorus calamus*. As stated in the specification calamus oil originating from tetraploid or hexaploid varieties contains a very high percentage of  $\beta$ -asarone varying from 70 to 90%. The diploid plants do not contain carcinogenic  $\beta$ -asarone and the triploid *Acorus calamus* contains limited amounts of  $\beta$ -asarone varying from 3 to 8%.

The instant invention has successfully addressed a long-felt need to obtain economically viable product from the tetraploid and hexaploid strains of *Acorus calamus*.

Deygan discloses a process for isolating  $\gamma$ -asarone from *Caesulia axillaries*. There is no suggestion or disclosure in Deygan that  $\beta$ -asarone is present in *Caesulia axillaries* and therefore, one skilled in the art would not look to Deygan for a process for preparing 1-propyl-2,4,5-trimethoxybenzene from an oil of a plant that contains a high percentage of  $\beta$ -asarone. See attached abstract " $\gamma$ -Asarone-the fungitoxic principle of the essential oil of *Caesulia axillaris*" World Journal of Microbiology and Biotechnology, 18(3):277-279. Deygan et al. does not provide the required motivation to reduce toxicity in a crude calamus oil that contains a high percentage of  $\beta$ -asarone.

The process of Deygan also differs significantly from the process claimed in this application.

In Devgan the oil from *Caesulia axillaries* is distilled, boiled and then chromatographed on alumina and eluted with light petroleum and light petroleum-benzene. The isolated  $\gamma$ -asarone is then mixed with alcohol and then hydrogenated. In another words, the first step in the process is isolating the  $\gamma$ -asarone. In the process claimed in this invention, there is no need to isolate  $\beta$ -asarone before hydrogenation. The process of Deygan because it requires the isolation of an individual asarone is tedious, time consuming and uneconomical. Patra also discloses hydrogenating isolated cis or trans asarone. Therefore, neither reference discloses or suggests hydrogenating crude calamus oil.

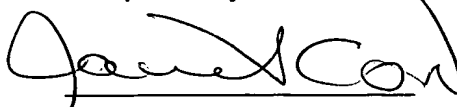
Hydrogenation of aromatic compounds and alkenes are discussed in March et al. However, the instant invention does not merely lie in a hydrogenation reaction of a substituent group present on an aromatic compound. March discusses "textbook" hydrogenation, specifically where a single type of compound is being hydrogenated. March does not disclose nor suggest that the desired results can be obtained with a crude oil that contains compounds other than those that are being hydrogenated.

In the instant invention hydrogenation is used to reduce the high level of  $\beta$ -asarone in tetraploid and hexaploid varieties of *Acorus calamus*.

There is no suggestion in the cited references of a process for the preparation of 1-Propyl-2,4,5-trimethoxybenzene of the formula I from crude calamus oil from a tetraploid or hexaploid *Acorus calamus*. Therefore, it is respectfully requested that the rejection be withdrawn.

Applicants submit that the present application is in condition for allowance and favorable consideration is respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Janet I. Cord", with a large, sweeping flourish extending from the end of the signature.

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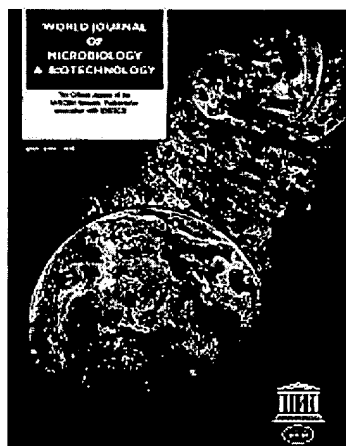


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### $\gamma$ -Asarone – the fungitoxic principle of the essential oil of *Caesulia axillaris*

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**Abstract** The essential oil of *Caesulia axillaris* has exhibited its fungitoxicity against *Aspergillus flavus* at its minimum inhibitory concentration of 1300 mg/l. It showed the potentiality of an ideal fungitoxicant because of its long shelf life, thermostable nature, broad fungitoxic spectrum and persistence of fungitoxicity even on introduction of high inoculum density of the test fungus. The fungitoxic principle of the oil was standardized as  $\gamma$ -asarone which showed fungitoxicity against the test fungus at 500 mg/l.

$\gamma$ -asarone - *Aspergillus flavus* - *Caesulia axillaris* - essential oils - fungitoxicity

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